



Examination Rebuttal and Amendment

3-18-2001

Cameron (US Patent No. 5,570,542) teaches a window insert that is retained at the top in the upper window channel and retained at the bottom in a groove along the lower edge of the window insert by the upper edge of the motor vehicle window. The problem with this application is that the window can no longer modulate wind or keep weather out of the motor vehicle which is obviously desirable. It is impossible to stop or decrease wind while driving because the use of the window insert by its very nature of retention does not permit the motor vehicle window to be rolled up. Weather sealing this application for a variety of seasonal conditions is also very difficult because of fit/ tolerances of the window insert to the motor vehicle window frame and gaps caused by irregular window shapes that retain the window insert along the bottom groove.

The current proposed device uniquely answers these problems by its ability to share the upper window channel with the motor vehicle window by using a .06"/.10" upper tab and a lower bracket that utilizes the previously unseen advantage of the vehicle window's relationship to the weather stripping by sliding between the motor vehicle window and the window's inside weather stripping. This allows the motor vehicle window to be rolled up to any height to modulate wind and airflow while the window insert is in place. This device also solves the daunting weather seal issues by allowing full utilization of the originally designed weather sealing qualities of the motor vehicle window.

Carson (US Patent No. 5,242,207) teaches a plurality of brackets that use treaded fasteners to retain the brackets to the motor vehicle window frame. One bracket is selectively removable but all are screwed into the window frame. The problem with this device is that the affixing of the brackets to the window frame permanently alters the original condition of the motor vehicle. The device also is not easily or quickly removed.

The current proposed device uniquely solves these problems by utilizing a single bracket that does not require any modifications whatsoever to the original condition of the motor vehicle. This is quite an exceptional solution in the area of ballistic armoring of a vehicle as all current systems require extensive and costly vehicle modification to accommodate extra needed window thickness and heavy duty motors to raise and lower those thicker windows. If the extra window thickness is laminated directly to a window in its closed position eliminating the need for heavy duty motors and the splitting of the door, then the window is permanently in the closed position and is permanently part of that unique motor vehicle. The current proposed device allows the full use of the motor vehicle window whether the window insert is or is not in place. The current proposed device also can be removed from any motor vehicle in seconds and even installed in a different vehicle in seconds which may be very important, particularly in law enforcement.

SAFETY SHEILD WINDOW INSERT

BACKGROUND OF THE INVENTION

The present invention is directed to the field of motor vehicle (automotive) safety equipment. More particularly, the present invention is directed to a transparent, bulletproof (defensible shield) window insert that may be inserted and retained within an opening of a motor vehicle (automotive) window.

With respect to the first (a second) aspect of the invention, there has been increasing concern about violence, car jacking, and generally, the threat of firearms against people in motor vehicles. (and awareness of, the vulnerability of a) Vehicular occupants are particularly vulnerable to bodily injury or attack as a result of the relative ease of access to the occupant of a vehicle via the glass window of the door. Glass windows may easily be broken and provide little, if any, resistance to assault with a gun. This device provides a solution for the long felt need of an easy-to-use, low cost form of protection against these assaults.

Currently, the only alternative for increasing the safety of a vehicle occupant is to have the motor vehicle bulletproofed by a professional service. This is an extremely expensive method requiring extensive modifications to the vehicle and costing tens of thousands of dollars. There are currently many materials and ways of achieving a bulletproof vehicle in the non-glass areas. However, the glass areas have few options for bulletproofing, principally, thick glass, glass/plastic laminates. These options are currently installed in two general methods. One method is by splitting the vehicle's door and adding space to accommodate the thicker glass plus increasing the capacity of the electric motors required to raise and lower the heavier glass. This is extremely expensive. The other method is laminating the extra thickness to the vehicle's window and not modifying the door. This leaves the vehicle's window in a permanently closed position. Any of these options are out of the financial range of the common person. Even law enforcement, which desperately needs protection, cannot afford it. This proposed device is

unique in that any adult can install or remove it in seconds without any modifications to the vehicle. It allows the use of the window, and is affordable. It can be instantly used on different vehicles of the same model, which is a great asset in law enforcement as a vehicle can become inoperative. (with respect to the glass window is to have a custom modification of the vehicle done to install a 'so called "bullet-proof" window. Such custom modifications are both expensive and relatively uncommon, requiring extensive modifications to the door assembly. Accordingly, the installation of bullet proof windows in vehicles is not commonplace.)

With respect to the second (a first) aspect of the present invention, there are few, if any, devices available to restrain a child or family pet, such as a dog or cat, from exiting through an open window, other than a cage or container. For the safety and comfort of the child or pet, it is clearly beneficial to allow a constant flow of fresh air into the vehicle. Currently, the only choice for parents, or pet owners, who wish to bring safety and comfort to their children and or pets; not confining them physically, or have concern about the amount of air flow, is to limit how far down the window is retracted; thus preventing the child or pet from exiting the window.

Automobile manufacturers are increasingly incorporating safety features into the design of automobiles, however, with respect to the windows on the automobile, the industry standard remains to simply use a glass window retracting into the door frame, additionally, sometimes limiting the distance of retraction. One safety feature that has been incorporated has been the use of a locking device activated by the driver which can be used to prevent passenger windows from being opened. This second aspect of the device is (primarily) intended for limiting the ability of small children to open a passenger door window.

There were prior devices associated with vehicle and occupant protection. However, they were unable to address the very difficult problem of year-round use in all types of weather, ease-of-use, and not require modifications to the vehicle. This device is unique in solving all these problems. It takes a leap and utilizes the previously unseen advantage presented by the

relationship of the motor vehicle window to its weather stripping to provide insert support, not require vehicle modification and retain the vehicle's original window weatherproofing.

Cameron (US Patent No. 5,570,542) taught a window insert that replaced, and was retained by, the vehicle's window. (The invention just described was granted a patent on November 5, 1996 to Allan Cameron. The patent number is 5,570,542. All of the claims of the patent were based on a window insert that occupied the area normally occupied by the original window.) The window insert was fitted into the upper channel of the window frame and was retained in its place by the original window fitting into a groove running along the bottom of the insert.

The window insert, because it was retained by the vehicle's window, was of limited use. ('s retention system, and because the window insert took the place of the original window, greatly limited the use of the invention.) The window could not be rolled up when the insert was in place. Therefore, driver was compelled to stop and remove the insert during inclement weather, or when it was desirable to reduce the flow of air through the insert. The bulletproof aspect of the window was more difficult to use as the insert needed extensive and complicated weather proofing to be used in any inclement weather.

Another system is taught by Carson (US Patent No. 5,242,207). Carson's taught a vandal protective plastic sheet that required four mounting brackets to be fastened with screws to the vehicle's window frame. This approach permanently modified and marred the vehicle's door and made quick installation or removal impossible.

Accordingly, it would be essential for year round use (beneficial) to have an alternative window insert that allows the car's windows to be rolled up and down while the insert remains in place.

SUMMARY OF THE INVENTION

The invention is directed to an insert formed from a clear or translucent material and a single mounting bracket, adapted to be inset into (, and retained by) the window opening (within) of a

conventional motor vehicles. It can be installed quickly and without any modifications to the vehicle. (automobiles).

With the first aspect of the invention the window insert is formed from a high impact resistant transparent material. The window insert can be easily installed into the window frame. The high impact material forming the window insert is a "bullet proof" material, such as a glass composite, glass-plastic composite or all plastic. The thickness of the material can vary according to the level of protection desired.

(was intended for use by parents and pet owners, and included a plurality of openings allowing venting of air for the benefit of children and pets, yet having the openings proportioned to prevent the child or pet from exiting the vehicle via the window. The material forming the window insert was preferably a plastic, such as a polycarbonate, or acrylic material.)

In the second aspect of the invention the window insert is intended for use by parents and pet owners, and includes a plurality of openings allowing venting of air for the benefit of children and pets, yet having the openings proportioned to prevent the child or pet from exiting the vehicle via the window. The material forming the window insert is preferably a plastic, such as a polycarbonate, or acrylic material.

(is formed from a high impact resistant transparent material. The window insert is easily installed into the window frame and retained by the window itself. The high impact material forming the window insert is preferably a "bullet proof" material, such as a glass composite or glass-plastic composite.)

For either of the two alternative aspects of the invention the window insert includes a mounting bracket which slips between and resides between the window and its lower inside weather-stripping. The window insert has an upper protruding edge, either integral, or separately attached, that is inserted into and shares with the window, the upper channel of the window frame. The window insert attaches to the mounting bracket with fasteners. The window insert

sits on the inside of the window. At this point the window insert is fully installed and the window can be raised or lowered. The automobile can be driven with the insert in place, whether the window is rolled up or down. The mounting bracket can have different size offsets to allow for different thicknesses of the bulletproof window inserts, allowing various levels of protection. The offset also allows for airflow between the window insert and the window, and prevents fogging. No attachments or modification of any kind need to be made to the door, car windows, or window frames.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a perspective view of the window insert according to the (first) second aspect of the present invention;

FIG. 2 is a perspective view of another embodiment of the window insert according to the first aspect of the present invention;

FIG. 3 is a perspective of an alternate embodiment of the window insert;

FIG. 4 is an alternative design for the orifices of the window insert;

FIG. 5 is a perspective view of the window insert according to the first (second) aspect of the present invention;

FIG. 6 is a perspective view of an alternative embodiment of the window insert according to the first (second) aspect of the present invention;

FIG. 7 is a section view illustrating the installation of the window insert;

FIG. 8 is a perspective view of an installed window insert from the outside of the automobile.

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 depicts a window insert **20** according to a (first) second aspect of the invention. The mounting bracket **21** has a bottom blade **22** sized to be insertable between a standard window **23** of an automobile and the lower inside weatherstripping **24** of the window **23**. The mounting bracket **21** has a plane **25** upon which the window insert **20** rests. The mounting bracket **21** also has two fastening devices **26** which retain the window insert **20** having two fastening device receivers **27**.

The window insert **20** has an upper protruding edge **28** sized to be insertable, along with the window **20**, into the upper receiving channel **29** of the window frame of the automobile door. The insert has a notched bottom **30** to rest upon the mounting bracket plane **25** and two fastening device receivers **27** to retain the window insert **20** in the window frame of the automobile door.

Accordingly, it may be appreciated that to install the window insert **20** of the present invention, the window **23** is retracted, the bottom blade **22** of the mounting bracket **21** is inserted between the window **23** and the lower inside weatherstripping **24**. The upper protruding edge **28** of the window insert **20** is inserted into the upper receiving channel **29** of the window frame, and the window insert's notched bottom **30** is rested on the mounting bracket plane **25**. The window insert **20** is then retained in place by engaging the mounting bracket fastening device **26** with the window insert fastening device receiver **27**. At this point, the window **23** may be raised or lowered as desired. It also may be appreciated that at no place has the window, window frame, or automobile door been modified or attached to.

Similarly, **FIG 2** depicts another embodiment of the window insert **20** according to the second (first) aspect of the invention. The window insert **20** has a bottom blade **31** which is sized to be insertable between a standard window **23** of an automobile and the lower inside weatherstripping **24** of the window **23**. The top of the window insert **20** has a receiving edge **32** and fastening devices **33**.

The top mounting bracket **34** has a protruding edge **35** sized to be insertable along with the window **23** into the upper receiving channel **29** of the window frame. The top mounting bracket **34** also has fastening device receivers **36**.

Accordingly, it may be appreciated that to install this embodiment of the window insert **20** of the present invention, the window **23** is retracted. The bottom blade **31** of the window insert **20** is inserted between the window **23** and the lower inside weatherstripping **24**. The top mounting bracket **34** is inserted into the upper receiving channel **29** of the window frame and is rested on the receiving edge **32** of the window insert **20**. The window insert **20** is retained in the window frame by engaging the window insert fastening device **33** and the top mounting bracket fastening device receivers **36**. At this point the window **23** may be raised or lowered as desired and no modification have been made to the car window, window frame, or automobile.

In the second (first) aspect of the present invention, wherein the window insert is used primarily to retain children or pets, it is preferred to include at least one and potentially a plurality of holes or orifices **37**, within the window insert **20** so that airflow can be facilitated. In the most basic embodiment of the invention, the orifices **37** may be simply circular openings cut perpendicular to the plane faces of the window insert, as shown in **FIG 1**.

FIG 3 is a perspective view of another alternative embodiment for a window insert **38**, and **FIG 4** shows an enlarged perspective view identified by circle **4** — **4** in **FIG 3**. In the design according to **FIGS 3** and **4**, the window insert **38** is formed to define a stepped pocket **39** to accept the top mounting bracket, and a blade **40** at the lower edge to be insertable between the window and the lower inside weatherstripping. In addition the window insert **38** may include orifices **41** having a circumferential ridge **42**, which defines and further strengthens the window insert **38**. The design of **FIGS 3** and **4** is particularly well suited to manufacture using a vacuum molding technique.

Moreover, for a first (second) aspect of the invention, wherein the window insert is to be used primarily as a high impact resistant bullet proof shield, the window insert would be devoid of orifices as they are illustrated in **FIG 5** . For these applications, the window insert may be manufactured of laminated layers **43** from plastics such as polycarbonate or acrylic or plastic laminates, or glass, or glass-plastic composites.

FIG 5 illustrates the mounting bracket variation for the bullet proof window insert application. The mounting bracket **44** has an offset mounting plane **45** to accept varying thicknesses of the bullet proof window inserts **46**, which provide different levels of protection. The offset mounting plane **45** also enhances air flow around the window insert **46** ,thereby preventing fogging in certain inclement weather conditions.

Ergonomically and aesthetically, it is desirable to have a curved window insert **46** which accommodates the natural contour of the curved glass window of most standard vehicles as **FIG 5** illustrates. However, it maybe less expensive to fabricate window inserts from a flat sheet of glass composite or glass-plastic composite.

FIG 5 also illustrates one method of forming or manufacturing the window inserts of the present invention. As it may be appreciated, window shapes and sizes vary so greatly from automobile to automobile that the window inserts will be manufactured or formed to provide a custom fit in most applications.

FIG 6 illustrates another alternative window insert embodiment where as the protruding edge **48** of the window insert **47** is fabricated from a separate material, such as a plastic or a metal, such as aluminum, or steel, is attached to the window insert in some manner, such as a fastener or adhesive. This may provide added strength to the window insert, provide solutions for an unusual application, or aid in manufacturing.

FIG 7 illustrates the installation process of one embodiment of the window insert. The mounting bracket blade **49** is inserted between the window **50** and the lower inside weatherstripping **51** of the window **50** . The upper protruding edge **52** of the window insert **54** is

inserted into the upper window channel 53 . The window insert 54 is rested on the mounting bracket plane 55 and then retained in place by the fastening system 56 . At this point, the window 50 may be raised and occupy the upper window channel 53 with the upper protruding edge 52 of the window insert 54 .

FIG 8 illustrates the window insert in place as viewed from the outside of the automobile door.

It should be evident from the foregoing description that the present invention provides many advantages over the prior art, for parents, pet owners, and vehicle occupants who wish to increase the security of a vehicle. Although preferred embodiments are specifically illustrated herein, it will be appreciated to those skilled in the art that many modifications and variations of the present invention are possible. It is therefore preferred that the present invention be limited only by the proper literal and equivalent scope of the appended claims.

What is claimed is:

1. A safety device for an (automobile) motor vehicle having door windows defined by a retractable glass panel which is guided into a receiving frame, the safety apparatus comprising:
 - a window insert formed from a sheet of optically transmissive material, said window insert having an upper edge defined to be inserted, along with the retractable glass panel window, into the upper receiving channel of the window frame, (said window insert including at least one orifice, covering less than fifty percent of the surface area of said window insert, allowing airflow through said window, said at least one orifice formed on an axis at a perpendicular angle to the plane of said window insert,) said window insert having one or more fastening receivers' and
 - a mounting bracket with a lower edge defined to be inserted between the retractable glass panel window and the lower inside weatherstripping of said retractable

glass panel window, said mounting bracket having a flat surface to receive the window insert, and said mounting bracket having one or more fasteners to retain the window insert.

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2. A safety device of claim 1 wherein said window insert is formed from a material selected from the group consisting of optically transmissive polycarbonates, acrylics, and plastics.
3. A safety device of claim 1 wherein said window insert is formed from a bullet proof material.
4. A safety device of claim 3 wherein said bullet proof material is selected from the group consisting of glass composite and glass/plastic composite and all plastic.
5. A safety device of claim 1 wherein said window insert has the bottom edge notched to assist during installation and accepts the mounting bracket.
6. A safety device of claim 1 wherein said window insert is formed from a material selected from the group consisting of opaque polycarbonates, acrylics, and plastics.
7. A safety device for an automobile vehicle having door windows defined by a retractable glass panel which is guided into a receiving frame, the safety apparatus comprising:
A window insert formed from a sheet of optically transmissive material, said window insert having a lower edge defined to be inserted between said retractable glass panel window and the lower inside weatherstripping of said retractable glass panel window, said window insert having at least one orifice covering less than fifty percent of the surface and of said window insert allowing airflow through said window insert, said at least one orifice formed on an axis at either a perpendicular or a non-perpendicular angle to the plane of said window insert, said window insert having one or more fasteners' and

A mounting bracket with an upper edge defined to be inserted, along with said retractable glass panel window, into the upper receiving channel of the window, said mounting bracket having one or more fastening receivers.

8. A safety device of claim 7 wherein said window insert is formed from a material selected from a group consisting of optically transmissive polycarbonates, acrylics, and plastics.
9. A safety device of claim 7 where said window insert is formed from bullet proof material.
10. A safety device of claim 9 wherein said bullet proof material is selected from the group consisting of glass composite and glass/plastic composite and all plastic.
- (11. A safety device for an automobile vehicle having door windows defined by a retractable glass panel which is guided into a receiving frame, the safety apparatus comprising:

A window insert formed from a sheet of optically transmissive material, said window insert having an upper edge defined to be inserted, along with the retractable glass panel window, into the upper receiving channel of the window frame, said window insert having a solid surface, said window insert having one or more fastening receivers; and
a mounting bracket with the lower edge defined to be inserted between the retractable glass panel window and the lower inside weather stripping of the retractable glass panel window, said mounting bracket having a flat surface to receive the window insert, and said mounting bracket having one or more fasteners to retain the window insert.

12. A safety device of claim 11 wherein said window insert is formed from a material selected from the group consisting of optically transmissive polycarbonates, acrylics, and plastics.
13. A safety device of claim 11 wherein said window insert is formed from a bullet proof material.

14. A safety device of claim 13 wherein said bullet proof material is selected from the group consisting of glass composite and glass/plastic composite.
15. A safety device of claim 11 wherein said window insert has the bottom edge notched to assist during installation and accepts the mounting bracket.)



ABSTRACT

A transparent, bulletproof insert for an motor vehicle window. The (safety device being a) window insert to be designed to fit within the standard frame of a window and be retained within the frame by the upper edge of the window insert, along with the window, fitting into the upper channel of the window frame and the bottom of the window insert fitting into and being retained by a bracket with the lower edge fitting between the window and the lower inside weather stripping of the window. The window insert can be installed in thirty seconds, requires no modification to the window, window frame , or door, and when in place the window may be raised or lowered at any time. The window insert to be fabricated of transparent bulletproof material. The window insert may include orifices to allow air inflow and/or outflow so as to provide a continuous flow of fresh air into the vehicle. The safety device may be used to retain a child or a pet, and can be formed from a plastic, acrylic, or polycarbonate material. (Alternatively, the window insert may be formed from a high impact or bullet proof material.)

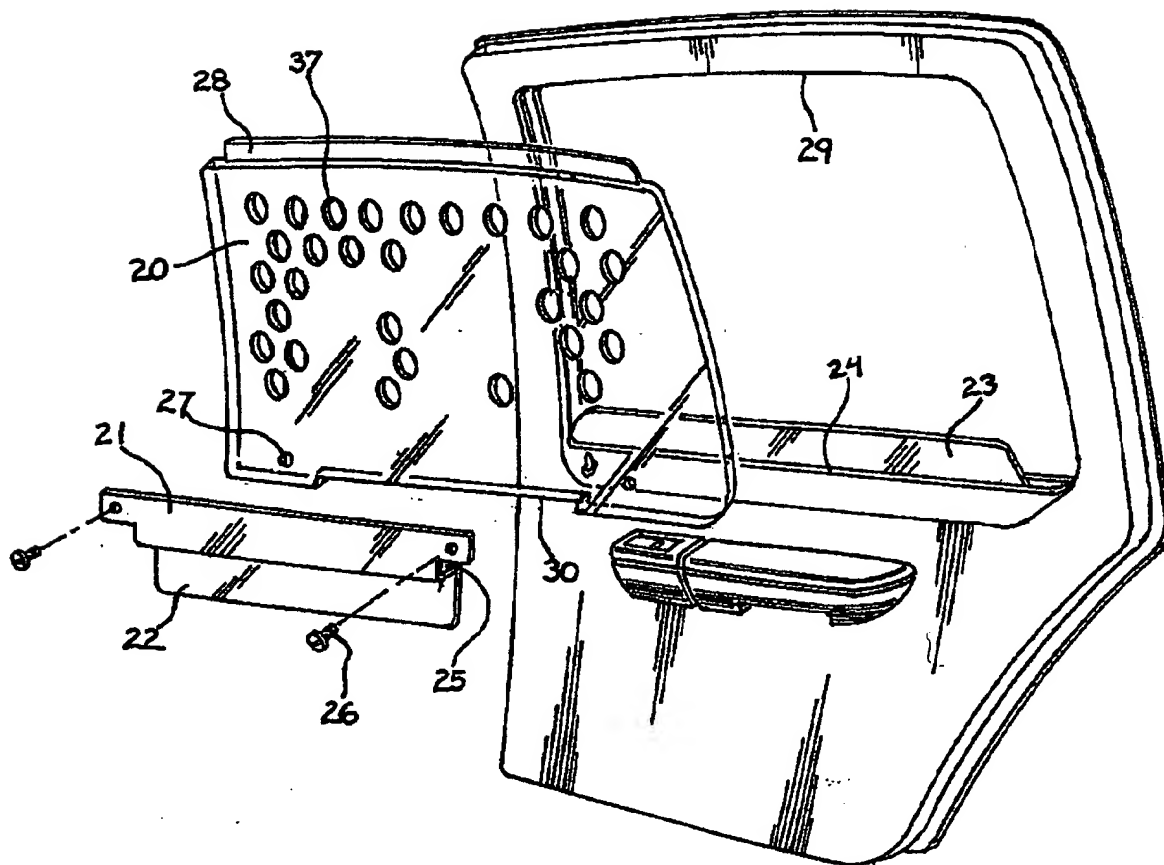


FIG. 1

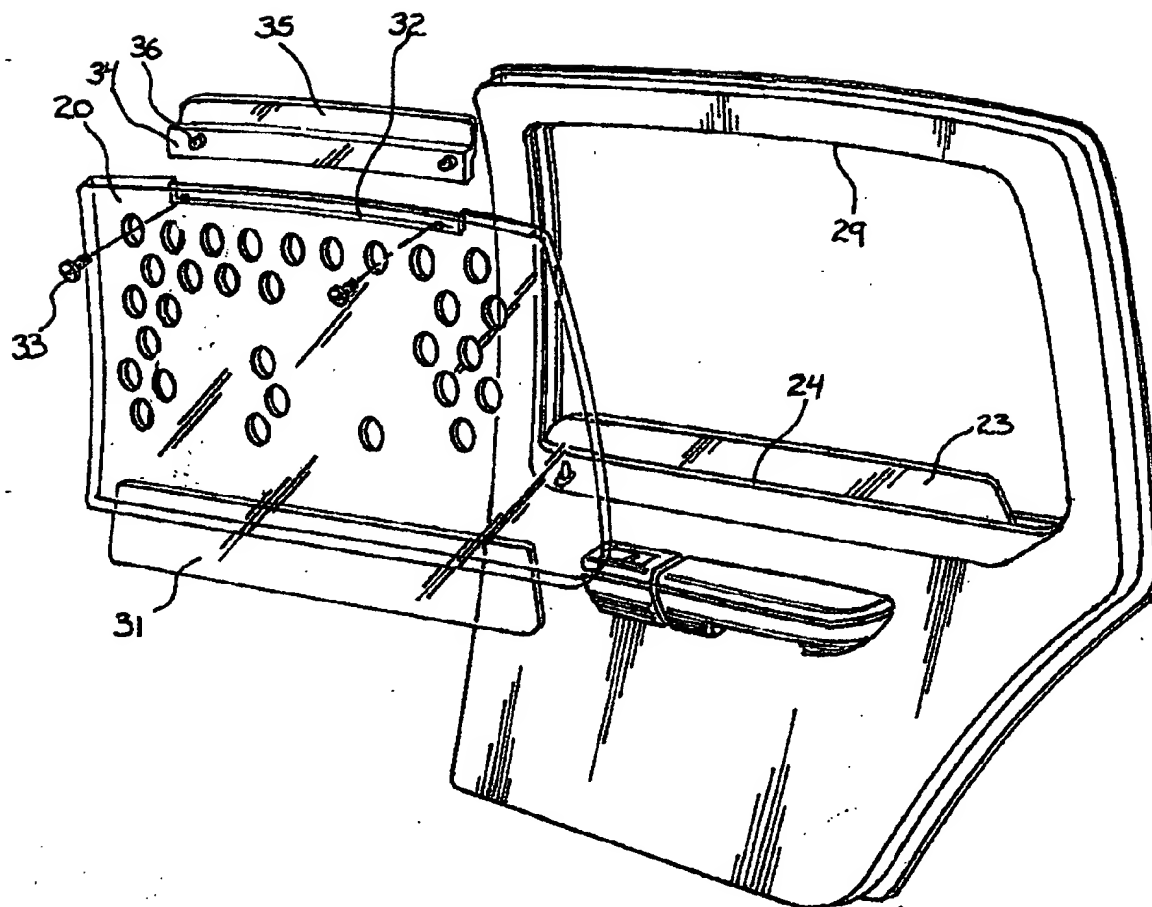


FIG. 2

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WASHINGTON, D.C. 20540

FIG. 3

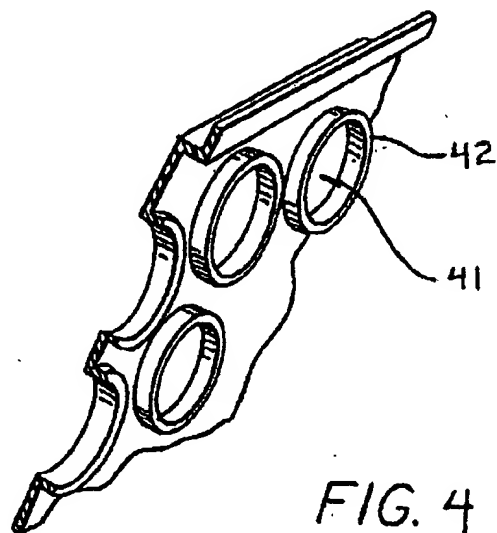
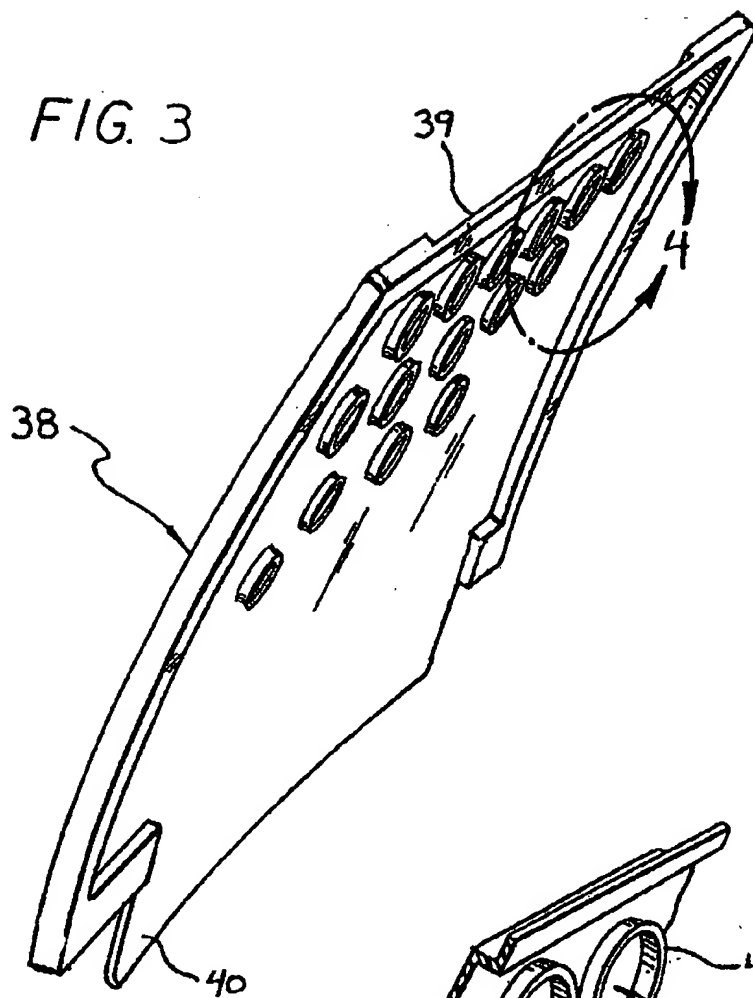


FIG. 4

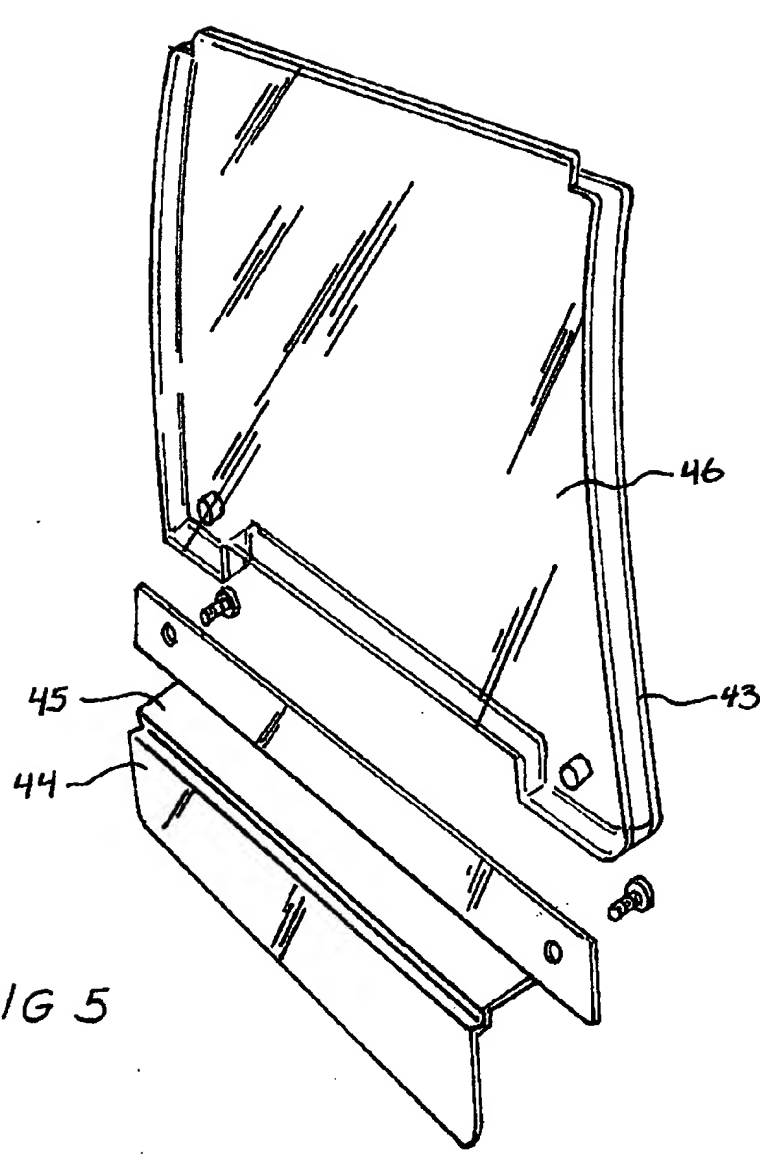


FIG 5

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MAR 15 1988
WASHINGTON, D.C. 20540

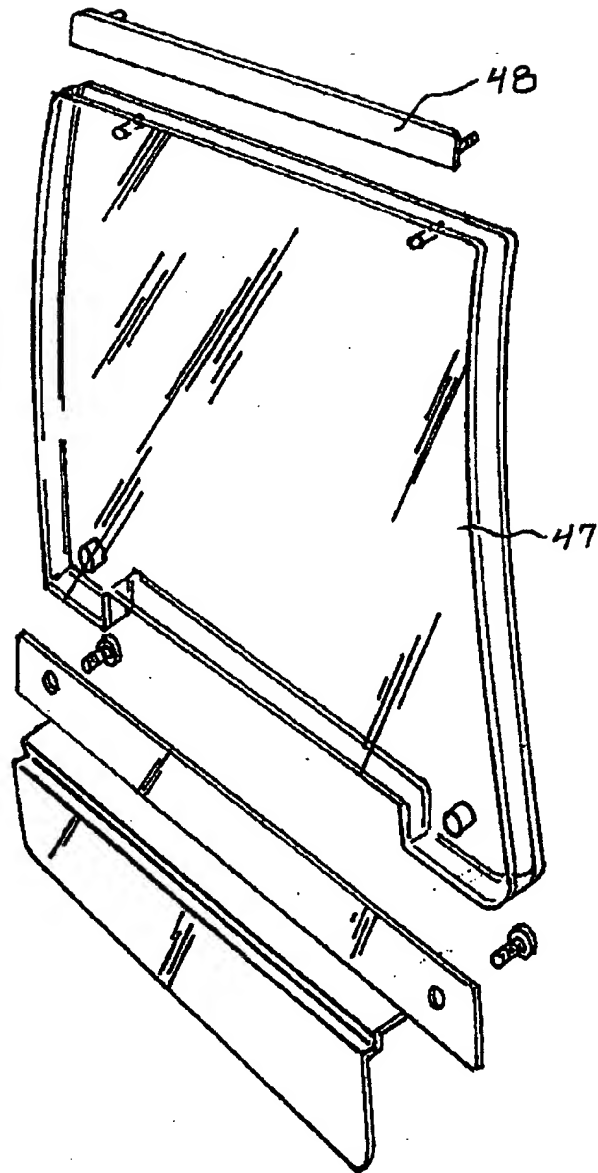


FIG 6

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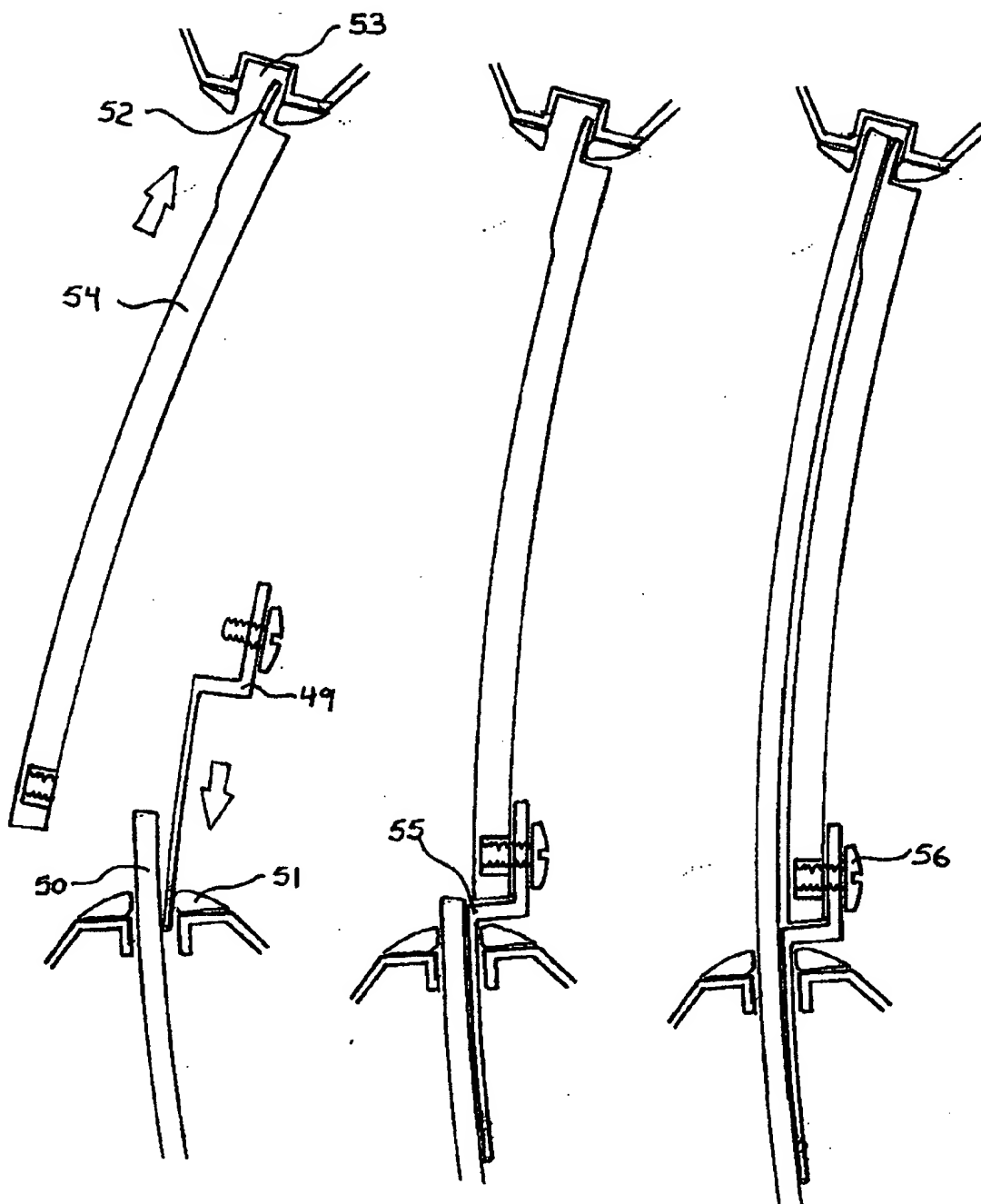


FIG 7

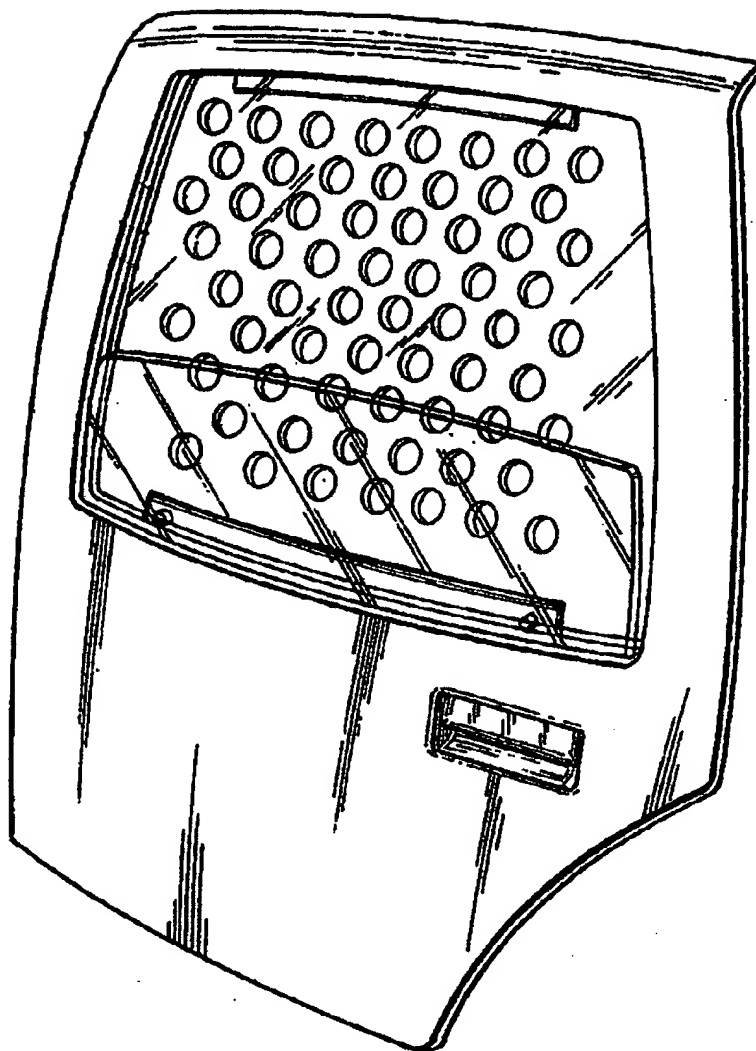


FIG 8